

\*\*\*Suspended\*\*\*

Trend Study 3-13-96

Study site name: Perry Basin.

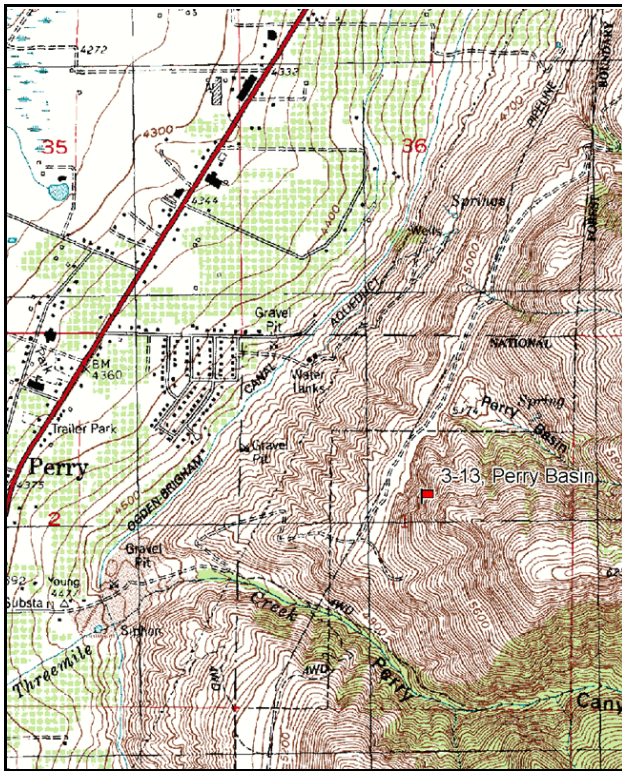
Vegetation type: Big Sagebrush-Grass.

Compass bearing: frequency baseline 160 degrees magnetic.

Frequency belt placement: Line 1 (11 & 95ft), line 2 (59ft), line 3 (34ft), line 4 (71ft).

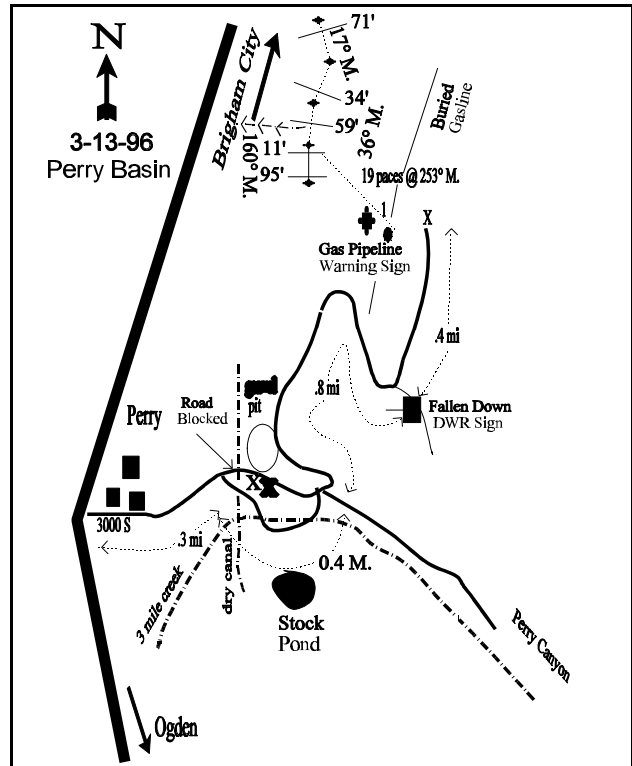
LOCATION DESCRIPTION

From 300 South and Highway 89 in Perry, proceed east towards Perry Basin driving around gravel pit for 0.7 miles and take the left fork. Travel 0.7 miles to another fork, stay to the right (on the main road) and proceed 0.4 miles to Perry Basin. Stop at this point. Perry Basin should be to the east, and a gas pipeline warning sign should be to the west. From the sign, proceed 19 paces at 253 degrees magnetic to the 100-foot stake of the baseline. The 0-foot baseline stake is 100 feet away at 340 degrees magnetic. The stake is marked with browse tag #7994. The rest of the baseline runs off the 0-baseline stake and runs in a northerly direction. Line 2 & 3 run 36 degrees magnetic. Line 4 runs 17 degrees magnetic.



Map Name: Willard

Township 8N, Range 2W, Section 1



Diagrammatic Sketch

UTM 4590804 N 415156 E

## DISCUSSION

### Trend Study No. 3-13

\*\*\***SUSPENDED** - This site was suspended in 2001 and will be reevaluated in 2006. This site was burned in 1995 and does not appear to have been rehabilitated. All of the key browse, mountain big sagebrush, was lost following the burn. The Project Leader evaluated this site in 2001 and due to the lack of browse and no sign of wildlife use on the site, it was suspended. Text and data tables are included from the 1996 report.

The Perry Basin study samples critical deer winter range located slightly west of Perry Basin on the Brigham City-Willard face. The site is near the lower edge of the upper Lake Bonneville terrace and has a moderate (15%) west- northwest slope. Elevation is approximately 5,100 feet. The range type is classified as mountain big sagebrush/grass. A fire burned the entire area during the summer of 1995 which eliminated essentially all of the browse. Deer use was light to moderate in 1984 and 1990, with no domestic livestock use evident. No big game pellet groups were found during the 1996 reading.

Soil is classed as "Kilburn Gravelly Sandy Loam," a widespread series on lake terraces in this area. All of the Kilburn soils are excessively drained and derived primarily from metamorphic rock. Permeability is rapid with low water holding capability in the upper soil layers. However, potential rooting depth extends to at least 60 inches, a depth at which water is almost always available. Soil reaction is neutral in the upper horizons and mildly alkaline in the deep subsoil. Runoff and erosion hazards range from medium to high depending upon slope steepness (Erickson and Mortensen 1974). Sampled soils at the site were moderately deep with a sandy loam texture and a slightly acid soil reaction (6.3 pH). The soil temperature is moderately high at 69°F at a depth of 18 inches. Small pea-sized gravel covers a considerable amount of the ground surface (45%). Effective rooting depth was estimated at 22 inches in 1996. The gentle terrain and the abundant vegetation cover helps limit erosion. There are some gullies west of the study area on steeper slopes, but they do not appear to be currently active.

Browse composition was previously dominated by a moderately dense and vigorous stand of mountain big sagebrush. With the exception of a small population of broom snakeweed, no other shrub species were present. The sagebrush population consisted of variable sized shrubs ranging from seedlings to larger than average mature plants. Age structure appeared stable and form class distribution suggested moderate to heavy use in 1984, but mostly light use since then. The fire which burned the area during the summer of 1995 eliminated nearly all of the browse on the site. Only a few sagebrush seedlings were sampled, along with a few rubber rabbitbrush and low rabbitbrush plants following the fire.

The herbaceous understory is dominated by forbs and annual grasses. Perennial grasses are represented by Sandberg bluegrass and occasional plants of bluebunch wheatgrass. Annual grasses were abundant enough to pose a significant fire hazard in 1990. After the fire, annual grasses, mostly cheatgrass, Japanese brome, and rattlesnake brome, accounted for 50% of the grass cover. An additional 48% of the grass cover comes from Sandberg bluegrass. The forb composition is diverse yet dominated by annuals and weeds. The most abundant forbs are dyers woad, yellow salsify, flannel mullein, and hoary aster. This site was apparently not seeded after the fire. At this time it has basically lost its usefulness as an important winter range for deer.

### 1984 APPARENT TREND ASSESSMENT

Soil trend appears to be down slightly because of higher than acceptable erosion resulting from an essentially annual understory, that although produces considerable litter, still allows excessive overland flows of water. Vegetative trend appears stable for the key browse species but down for understory composition and density.

## 1990 TREND ASSESSMENT

While this site maintains a moderate density of mountain big sagebrush, data shows a notable decline (21%) in density. The sagebrush population was classified as 59% decadent compared to 42% in 1984. Sagebrush canopy cover averages 22%. The plants are large and healthy, and have a light to moderate hedged growth form. Several herbaceous components have increased, mostly Sandberg bluegrass (80% quadrat frequency) and dyers woad (88% quadrat frequency), which are both increasers. Deer use is light. There is no evidence of recent soil erosion.

### TREND ASSESSMENT

soil - stable (3)

browse - slight downward trend, increased decadency and lower densities in sagebrush (2)

herbaceous understory - up but composition is poor, can carry a destructive fire (5)

## 1996 TREND ASSESSMENT

Trend for soil is down slightly due to an increase in percent bare ground and a decline in litter cover due to the fire. Erosion does not appear to be a problem however. The browse trend is down and nearly absent on the site. A few sagebrush seedlings were found, but they will likely not survive to maturity due to competition with the abundant and weedy herbaceous understory. Trend for the herbaceous understory is stable. Sum of nested frequency for perennial grasses remained similar to 1990 estimates, while frequency of forbs declined. The decline in forb nested frequency comes primarily from a significant decline in the frequency of dyers woad (235 to 122).

### TREND ASSESSMENT

soil - down slightly (2)

browse - down, eliminated by fire (1)

herbaceous understory - stable but poor composition which is dominated by annual grasses and weedy forbs (3)

HERBACEOUS TRENDS --  
Herd unit 03 , Study no: 13

T y p e	Species	Nested Frequency			Quadrat Frequency			Average Cover %
		'84	'90	'96	'84	'90	'96	'96
G	Agropyron spicatum	3	4	4	1	3	1	.15
G	Aristida purpurea	7	3	6	2	1	2	.41
G	Bromus brizaeformis (a)	-	-	97	-	-	49	.57
G	Bromus tectorum (a)	-	-	253	-	-	87	10.29
G	Festuca myuros (a)	-	-	19	-	-	10	.85
G	Poa bulbosa	-	-	3	-	-	1	.03
G	Poa secunda	<sub>a</sub> 20	<sub>b</sub> 225	<sub>b</sub> 218	12	80	78	11.27
G	Sporobolus cryptandrus	-	3	-	-	1	-	-
Total for Annual Grasses		0	0	369	0	0	146	11.71
Total for Perennial Grasses		30	235	231	15	85	82	11.86
Total for Grasses		30	235	600	15	85	228	23.57
F	Achillea millefolium	10	15	7	4	5	3	.21
F	Agoseris glauca	<sub>a</sub> 1	<sub>b</sub> 16	<sub>ab</sub> 7	1	9	4	.04
F	Alyssum alyssoides (a)	-	-	70	-	-	30	.40
F	Ambrosia artemisifolia	<sub>b</sub> 50	<sub>b</sub> 20	<sub>a</sub> 4	19	9	2	.03
F	Artemisia ludoviciana	1	4	3	1	1	1	.38
F	Astragalus spp.	-	5	-	-	3	-	-
F	Astragalus utahensis	-	-	3	-	-	2	.01
F	Calochortus nuttallii	<sub>a</sub> -	<sub>b</sub> 31	<sub>a</sub> 1	-	12	1	.00
F	Collomia linearis (a)	-	-	2	-	-	2	.03
F	Collinsia parviflora (a)	-	-	4	-	-	2	.06
F	Crepis acuminata	<sub>a</sub> -	<sub>b</sub> 18	<sub>b</sub> 29	-	9	14	.44
F	Epilobium brachycarpum (a)	-	-	8	-	-	5	.03
F	Euphorbia spp.	-	-	1	-	-	1	.00
F	Galium aparine (a)	-	-	5	-	-	2	.03
F	Hackelia patens	-	-	-	-	-	-	.03
F	Helianthus annuus (a)	-	<sub>a</sub> 1	<sub>b</sub> 11	-	1	6	.63
F	Heterotheca villosa	1	1	1	1	1	1	.21
F	Holosteum umbellatum (a)	-	-	35	-	-	18	.19
F	Isatis tinctoria	<sub>a</sub> 153	<sub>b</sub> 235	<sub>a</sub> 122	74	88	50	5.34
F	Lactuca serriola	<sub>b</sub> 44	<sub>a</sub> 4	<sub>a</sub> 10	18	2	6	.37
F	Lithospermum ruderae	2	3	3	2	1	1	.33
F	Lupinus argenteus	1	-	-	1	-	-	-
F	Lygodesmia grandiflora	1	2	4	1	1	2	.33

Type	Species	Nested Frequency			Quadrat Frequency			Average Cover %
		'84	'90	'96	'84	'90	'96	'96
F	<i>Machaeranthera canescens</i>	<sub>a</sub> -	<sub>b</sub> 15	<sub>b</sub> 18	-	5	8	.89
F	<i>Microsteris gracilis</i> (a)	5	-	6	4	-	3	.09
F	<i>Oenothera pallida</i>	6	-	7	2	-	3	.21
F	<i>Phacelia</i> spp.	3	-	6	1	-	4	.09
F	<i>Phlox longifolia</i>	<sub>a</sub> 8	<sub>a</sub> 14	<sub>b</sub> 29	3	5	12	.33
F	<i>Plantago patagonica</i> (a)	-	-	20	-	-	9	.04
F	<i>Polygonum douglasii</i> (a)	-	-	49	-	-	25	.40
F	<i>Tragopogon dubius</i>	<sub>b</sub> 146	<sub>ab</sub> 122	<sub>a</sub> 85	65	49	41	1.55
F	<i>Verbascum thapsus</i>	<sub>a</sub> -	<sub>a</sub> -	<sub>b</sub> 51	-	-	19	1.81
Total for Annual Forbs		5	1	210	4	1	102	1.93
Total for Perennial Forbs		427	505	391	193	200	175	12.64
Total for Forbs		432	506	601	197	201	277	14.58

Values with different subscript letters are significantly different at alpha = 0.10 (annuals excluded)

#### BROWSE TRENDS --

Herd unit 03 , Study no: 13

Type	Species	Strip Frequency	Average Cover %
		'96	'96
B	<i>Artemisia tridentata vaseyana</i>	0	.02
B	<i>Chrysothamnus nauseosus consimilis</i>	1	.38
B	<i>Chrysothamnus viscidiflorus viscidiflorus</i>	2	-
Total for Browse		3	0.40

#### BASIC COVER --

Herd unit 03 , Study no: 13

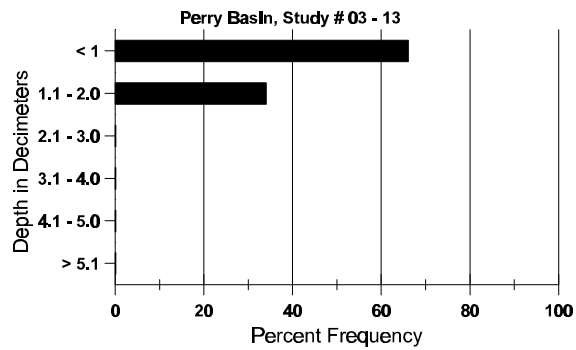
Cover Type	Nested Frequency	Average Cover %		
	'96	'84	'90	'96
Vegetation	335	1.00	15.75	38.44
Rock	66	.25	0	.90
Pavement	375	26.00	25.25	45.22
Litter	173	72.00	55.75	2.09
Cryptogams	6	.50	0	.01
Bare Ground	181	.25	3.25	8.69

# SOIL ANALYSIS DATA --

Herd Unit 03, Study no: 13, Perry Basin

Effective rooting depth (in)	Temp °F (depth)	PH	%sand	%silt	%clay	%OM	PPM P	PPM K	dS/m
22.0	69.0 (18.1)	6.3	66.2	17.4	16.4	2.6	20.7	256.0	.4

## Stoniness Index



# PELLET GROUP FREQUENCY --

Herd unit 03 , Study no: 13

Type	Quadrat Frequency '96
Rabbit	2

## BROWSE CHARACTERISTICS --

Herd unit 03 , Study no: 13

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Artemisia tridentata vaseyana																		
S	84	3	-	-	-	-	-	-	-	-	3	-	-	-	200		3	
	90	4	-	-	-	-	-	-	-	-	4	-	-	-	266		4	
	96	10	-	-	-	-	-	-	-	-	10	-	-	-	200		10	
Y	84	8	-	-	-	-	-	-	-	-	8	-	-	-	533		8	
	90	2	-	-	1	-	-	-	-	-	3	-	-	-	200		3	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
M	84	5	7	10	-	-	-	-	-	-	20	-	1	1	1466	33 31	22	
	90	13	1	-	-	-	-	-	-	-	14	-	-	-	933	30 29	14	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0	- -	0	
D	84	-	6	16	-	-	-	-	-	-	15	-	4	3	1466		22	
	90	18	6	-	-	-	-	-	-	-	18	-	1	5	1600		24	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	900		45	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		25%			50%			17%			-21%							
'90		17%			00%			15%										
'96		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	3465	Dec:	42%			
												'90	2733		59%			
												'96	0		0%			
Chrysothamnus nauseosus consimilis																		
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	- -	0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	- -	0	
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20	19 35	1	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		00%			00%			00%										
'90		00%			00%			00%										
'96		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	0	Dec:	-			
												'90	0		-			
												'96	20		-			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Chrysothamnus viscidiflorus viscidiflorus																		
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	2	-	-	-	-	-	-	-	-	-	2	-	-	40	14	24	2
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		00%			00%			00%										
'90		00%			00%			00%										
'96		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	0	Dec:	-			
												'90	0		-			
												'96	40		-			
Gutierrezia sarothrae																		
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	90	7	-	-	-	-	-	-	-	-	7	-	-	-	466	10	11	7
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
D	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	5	-	-	-	-	-	-	-	-	5	-	-	-	333			5
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		00%			00%			00%										
'90		00%			00%			00%										
'96		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	0	Dec:	0%			
												'90	799		42%			
												'96	0		0%			